

2nd Edition

Research Methodology

Text and
Cases with
SPSS
Applications



DR. S. L. GUPTA
HITESH GUPTA

Brief Contents

	<i>Pages</i>
<i>Preface</i>	(v)
<i>Acknowledgements</i>	(vii)
<i>Brief Contents</i>	(ix)
<i>Detailed Contents</i>	(xi)
1. Research Fundamentals	1—29
2. Scientific Method	31—44
3. Defining Research Problems and Hypothesis Formulation	45—56
4. Research Design	57—80
5. Methods and Techniques of Data Collection	81—110
6. Sampling	111—139
7. Attitude Measurement and Scales	141—175
8. Questionnaire Design	177—217
9. Data Preparation and Preliminary Analysis	219—248
10. Statistical Analysis and Interpretation of Data	249—287
11. Multivariate Analysis	289—351
12. T-Test and ANOVA	353—381
13. Research Report and Proposal Writing	383—414
14. SPSS in Research Methodology	415—433
Glossary	435—444
Annexures	445—466
Index	467—474

Detailed Contents

	<i>Pages</i>
<i>Preface</i>	(v)
<i>Acknowledgements</i>	(vii)
<i>Brief Contents</i>	(ix)
<i>Detailed Contents</i>	(xi)
Chapter 1 : Research Fundamentals	1–29
1.1. MEANING OF RESEARCH.....	5
1.2. OBJECTIVES OF RESEARCH	5
1.2.1. Characteristics of Research	6
Managerial Value of Business Research	
When is business research needed?	6
1.3. RESEARCH CATEGORIES	6
Basic Research	6
Applied Research	7
Problem Solving Research	7
Problem Orientated Research	7
Some Other types of Research	7
Evaluation Research	7
Performance-Monitoring Research	7
Total Quality Management(TQM)	7
Types of research	7
Some Research Basics	8
1.4. FEATURES OF A GOOD RESEARCH STUDY	9
Exhibit 1	9
Exhibit 2	10
1.5. TYPES OF RESEARCH STUDIES	10
Exploratory Research	10
Conclusive Research	10

Types of Research Studies.....	11
Exhibit 3.....	11
1.6. SCIENTIFIC METHOD	11
1.7. COMPARISON OF THE SCIENTIFIC METHOD AND NON-SCIENTIFIC METHOD	12
1.8. RESEARCH METHODS AND RESEARCH METHODOLOGY	12
1.9. ORGANISING THE RESEARCH FUNCTION	12
Advantages of Outside Agency	13
1.10. THE RESEARCH PROCESS	13
1.10.1. Identifying the Problem.....	14
1.10.2. Developing Research Strategy	14
1.10.3. Collection of Data	15
1.10.4. Analysis of Collected Data	15
1.10.5. Preparation of Research Report.....	15
1.10.6. Organization of the Research Report.....	16
Prefatory Group	16
Title Fly, Title Page, Letter of Authorization, Letter of Transmittal, Foreward/ Preface, Table of Contents, List of Tables/Charts/Illustrations, Glossary of Terms / Abbreviations, Executive Summary	
Main Report Group	
Introduction, Objectives, Methodology	
Appended Part Group	
Findings, Recommendations, Bibliography, Appendices, Index	
1.10.7. Physical Presentation of the Research Report	18
1.10.8. Page Layout	18
Special Page Layout.....	18
Conventional Page Layout	18
1.10.9. Guidelines for Report Presentation.....	18
1.11. ISSUES AND TRENDS IN RESEARCH.....	19
REVIEW QUESTIONS	20
Case Study-1	21
Annexure-1	22
Annexure-2.....	24

Chapter 2 : Scientific Method 31-44

2.1. INTRODUCTION	31-44
2.2. METHODS TO ELIMINATE UNCERTAINTY	33
2.2.1. Method of Tenacity	33
2.2.2. Method of Authority	33
2.2.3. Method of Intuition	34
Lack of Time, Lack of Money, Lack of Expertise, Ignorance	34
2.3. SCIENTIFIC METHOD	
2.4. STEPS IN SCIENTIFIC RESEARCH	35
Relation between Scientific Method and Marketing Research	36
2.5. DISTINCTION BETWEEN SCIENTIFIC METHOD AND NON-SCIENTIFIC METHOD	37
2.6. DIFFICULTIES IN APPLYING SCIENTIFIC METHOD IN MARKETING RESEARCH	37
2.6.1. Greater Complexity of Subject	38
2.6.2. Difficulty of Obtaining Accurate Measurements	39
2.6.3. Influence of Measurement Process on Results	39
2.6.4. Difficulty of Using Experiments to Test Hypotheses	39
2.6.5. Difficulty in Making Accurate Prediction	40
2.6.6. Problematic Objectivity of the Investigator	40
2.7. HYPOTHESIS - A CONCEPTUAL FRAMEWORK	40
2.7.1. Definition	41
2.7.2. Types of Hypothesis	42
2.7.3. Precautions While Setting Hypothesis	42
2.8. TYPES OF ERRORS	42
Testing of Hypothesis	43
Are Hypothesis Always Necessary?	43
2.9. INDUCTIVE vs. DEDUCTIVE LOGIC	43
REVIEW QUESTIONS	44

Chapter 3 : Defining Research Problems and Hypothesis Formulation 45-56

3.1. RESEARCH PROCESS	47
3.2. DEFINING THE RESEARCH PROBLEMS	47
3.2.1. Identification of Research problems	47

3.2.2.	Selection of Research Problem	48
	Facts one should know regarding Selecting of the Research Problem	48
3.2.3.	The Process of Research Problem Definition	48
	Some Facts Involved in Defining the Research Problem	48
3.3.	FORMULATION OF THE PROBLEMS	49
3.3.1.	Steps Involved in Defining a Problem	49
3.3.2.	Formulating the problems	49
3.4.	FORMULATION OF HYPOTHESIS	50
3.4.1.	Concept of Hypothesis.....	50
3.4.2.	Hypothesis Testing.....	50
	Formulate a Hypothesis.....	50
	Setting up a Suitable Significance Level	50
	Choose a Test Criterion.....	51
	Compute the Test Statistic.....	51
	Make Decision	51
3.5.	DEVELOPING THE RESEARCH PLAN	51
3.5.1.	Implementing the Research Plan.....	51
3.5.2.	Interpreting and Reporting the Findings	51
3.6.	IMPORTANCE OF HYPOTHESIS IN DECISION-MAKING.....	52
3.6.1.	Components in Decision-Making.....	52
	Course of Action	52
	States of Nature (Events).	53
3.6.2.	Outcomes	54
	REVIEW QUESTIONS	55
	Case Study	56

Chapter 4 : Research Design 57–80

4.1.	RESEARCH DESIGN DEFINED	59
4.2.	TYPES OF RESEARCH DESIGNS	60
	Exploratory	60
	Conclusive	60
	A Classification of Research Designs	61
	Many variations of Research are possible	61
	A Comparison of Basic Research Designs	62

4.2.1.	Exploratory Research Design	63
	Using Secondary Sources of Information	63
	Using Expert Opinions/Individuals with Ideas	63
	Depth Interviews	63
	Focus Group Interviews	64
	Projective Techniques	65
	Using Case Analysis	65
4.2.2.	Conclusive Research	65
	Descriptive Research	66
	Experimental or Casual Research.....	68
	What is Experimentation?	68
	Concept of Causality	68
	Pre-test Post-test Control Group Design.....	70
	The Solomon Four Group Design	70
	Post-test only Control Group Design	70
	Conducting an Experiment	71
	Evaluation of Experiment	71
	Selecting Relevant Variables	71
	Validity of Experiment.....	71
	Types of Experimental Designs	72
	"After Only" Design, "Before After"" Design, 'Before After with Control" Group, "Four Groups Six Study ' Designs, "After only with Control" group, "The Latin Square" Design	
	Categorisation of Experimental Research Designs	74
	Before-and-after without Control Group	74
	Time Series Design Involving Control Group	74
	Steps in Planning an Experimental Design.....	74
4.3.	EXTENSIONS OF TRUE EXPERIMENTAL DESIGNS	75
4.3.1.	Completely Randomized Design.....	75
4.3.2.	Randomized Block Design	75
4.3.3.	Latin Square Design	76
4.3.4.	Factorial Design	77
4.4.	SELECTING AN EXPERIMENTAL DESIGN	77
4.5.	LIMITATIONS OF EXPERIMENTATION	77
	Potential Sources of Error in Research Designs	78
	REVIEW QUESTIONS	78

Chapter 5 : Methods and Techniques of Data Collection 81-110

5.1. TYPES OF DATA.....	83
5.1.1. Primary Data	83
5.1.2. Secondary Data	83
5.2. DISTINCTION BETWEEN PRIMARY DATA AND SECONDARY DATA	84
5.3. DATA COLLECTION PROCEDURE FOR PRIMARY DATA	84
5.3.1. Planning the Study	84
5.3.2. Modes of Primary-data Collection	85
5.3.3. Primary Data-Observation Process	85
5.3.4. Primary Data-Experimentation Method.....	85
5.3.5. Primary Data-Questionnaire Technique	86
5.3.6. Limitations of Primary Data Collection	86
5.3.7. Different Types of Study through Primary Data	87
Structured Study / Non-Structured Study	87
Disguised / Non-Disguised Study	88
Projective Technique (Disguised study)	88
Dept Interview (Non-disguised)	88
5.4. MAJOR STEPS IN CONDUCTING A SURVEY	88
5.4.1. Deciding on the Research Objectives.....	88
5.4.2. Methods of Collection of Data	88
5.4.3. Construction of a Questionnaire	89
Basically a Questionnaire must serve Two Functions.....	90
Determine the Type of Questionnaire to be used	90
Determine the Content of Individual Questions.....	90
Determine the Type of Question to Use	91
Multiple Choice Questions	91
Dichotomous Questions	92
Types of Questions Encountered Devising a Questionnaire.....	92
Dichotomous Questions, Multiple choice questions, Leading Questions, Ambiguous Questions, Ranking item questions	
Decide on Question Sequence.....	93
Decide on Layout and Reproduction.....	93
Pretest	93
Revisions and Final Draft	93
Selection of a Sample	93

5.5	METHODS FOR SECONDARY DATA COLLECTION	94
5.5.1.	Secondary Data may either be published data or unpublished data	94
5.5.2.	Sources of Unpublished Data.....	94
5.5.3.	Secondary Data-Internal	94
5.5.4.	Secondary Data-External	94
	Case Study-1.....	94
5.6.	SCHEDULE METHOD	95
5.6.1.	Schedule Defined	96
5.6.2.	Purpose/Objectives of the Schedule.....	96
5.6.3.	Types of Schedules	96
5.6.4.	Merits of Schedule Method	96
5.6.5.	Limitations of the Schedule Method	97
5.6.6.	Characteristic of a Good Schedule	97
5.6.7.	Suitability of Schedule Method	98
5.6.8.	Distinction between Schedule and Questionnaire.....	98
5.6.9.	Questions to be Included in the Schedule.....	98
5.6.10.	Organization of Schedule	99
5.6.11.	Testing the Validity of the Results	99
5.7.	CASE STUDY METHOD.....	100
5.7.1.	Characteristics of Case Study	100
5.7.2.	Basic Assumptions of the Case Study Method.....	101
5.7.3.	Advantages of Case Study Method.....	101
5.7.4.	Limitations of the Case Study Method	102
5.7.5.	Procedure of Case Study	103
5.7.6.	Sequence of Case Study Method	103
	Case Study-2.....	104
	Case Study-3.....	105
	REVIEW QUESTIONS	110

Chapter 6 : Sampling 111-139

6.1.	INTRODUCTION	113
6.2.	SAMPLE VS CENSUS.....	113
6.3.	WHY SAMPLING ?.....	115
6.3.1.	Criteria for Good Sampling	116

6.4. THE SAMPLING PROCESS	116
Define the Population	116
Identify the Sampling Frame	116
Specify the Sampling Unit	117
Specify the Sampling Method	
Determine the Sample Size (n)	117
Specify the Sampling Plan	117
Select the Sample	117
Sample Sizes used in Research Studies	118
6.5. TYPES OF SAMPLING METHODS / TECHNIQUES	118
6.5.1. Probability Sampling Methods	119
Simple Random Sampling	119
Selection of Random Samples	
Procedures for Drawing Probability Samples through Simple Random Sampling	120
Simple Random Samples in Practice	121
Systematic Sampling	121
Systematic Sampling in Practice	
Procedures for Drawing Probability Samples through Systematic Sampling	121
Limitations of Systematic Sampling	122
Stratified Random Sampling	122
Major Issues involved in Stratified Sampling	124
Basis of Stratification	124
Number of Strata	124
Sample Sizes within Strata	124
Proportion Allocation	124
Disproportional Allocation	125
Procedures for Drawing Probability Samples through Stratified Random Sampling	126
Stratified Sampling in Practice	126
Estimation : Statistical Inference - Point Estimates and Interval Estimates	126
Cluster Sampling	128
Procedures for Drawing Probability Samples through Cluster Sampling	129

Cluster Sampling in Practice	129
Use of Cluster Sampling in a National Survey	129
How to Select a Sample in Cluster Sampling	129
Types of Cluster Sampling	130
Multistage and Multiphase Sampling	130
6.5.2 Non-probability Sampling Methods	131
Convenience Sampling	131
Judgement Sampling	131
Quota Sampling	132
Choosing Non-Probability vs. Probability Sampling	132
Strengths and Weaknesses of Basic Sampling Techniques	133
6.6. CHARACTERISTICS OF A GOOD SAMPLE DESIGN	133
6.7. SAMPLING AND NON-SAMPLING ERRORS	133
Some Problems on Sampling Fundamentals	134
REVIEW QUESTIONS	136
Practical Problems	136
Case Study	139

Chapter 7 : Attitude Measurement and Scales 141–175

7.1. Nature of Attitudes	143
7.1.1. Components of Attitudes	143
7.1.2. Link between Attitudes and Behaviour	144
7.1.3. Attitude Measurement Process	144
7.2. DIFFICULTY OF ATTITUDE MEASUREMENT	144
7.2.1. Measurement Accuracy	145
7.2.2. Measurement Development	145
7.3. USE OF SCALING IN RESEARCH	146
7.4. TYPES OF SCALES	146
7.4.1. A Classification Scales	147
Basic Non-Comparative Scales	149
Summary of Itemized Scale Decisions	149
Primary Scales of Measurement	151
7.4.2. Considerations in Developing a scale	152
7.4.3. Limitations	152
7.4.4. Advantages & Disadvantages of Scales	152
7.5. LAW OF COMPARATIVE JUDGEMENT BY L.L. THURSTONE	153

7.6. ARBITRARY SCALES.....	154
7.6.1. Advantages.....	155
7.6.2. Limitations.....	155
7.7. DIFFERENTIAL SCALES (THURSTONE TYPE SCALES).....	155
7.7.1. Advantage.....	155
7.7.2. Limitations.....	155
7.8. SUMMATED SCALES (LIKERT TYPE SCALES).....	155
7.8.1. Advantages.....	156
7.8.2. Limitations.....	156
7.9. COMULATIVE SCALES.....	157
7.9.1. Advantages.....	157
7.9.2. Limitations.....	157
7.10. SPECIAL SCALE.....	158
7.11. FRACTIONATION RATING SCALE.....	158
7.12. FISHBEIN'S SCALE.....	158
7.13. MULTI-DIMENSIONAL SCALING (MDS).....	158
Uses of MDS.....	159
Limitations of MDS.....	159
7.14. SEMANTIC DIFFERENTIAL SCALING.....	159
7.15. DISGUISED, STRUCTURED, SCALING TECHNIQUES.....	160
7.15.1. Word Association.....	160
7.15.2. Sentence Completion.....	160
7.15.3. Thematic Apperception Test.....	161
7.15.4. Story-telling.....	161
7.15.5. House-building / Body-building.....	161
7.16. MULTI-ITEM SCALING.....	162
7.16.1. General Guidelines for Developing a Multiple-item Scale.....	162
7.16.2. Development of a Multi-item Scale.....	162
7.16.3. Scale Evaluation.....	162
7.17. POTENTIAL SOURCES OF ERROR IN MEASUREMENT.....	163
7.18. SPSS PROCEDURE FOR MULTIDIMENSIONAL SCALING.....	163
REVIEW QUESTIONS.....	170
Annexure-1.....	172
Annexure-2.....	173
Survey Questionnaire.....	174

Chapter 8 : Questionnaire Design 177-217

8.1. INTRODUCTION	177-217
8.1.1. Questionnaires in Clinical Research	179
8.2. TECHNIQUES FOR DESIGNING QUESTIONNAIRES	180
8.3. TYPE OF QUESTIONS	180
8.3.1. Close Ended	181
8.3.1.1. Requirements for Close Ended Questions	182
8.3.2. Open Ended	182
8.4. QUESTIONNAIRE CONSTRUCTION	182
8.4.1. Conceptual Framework	183
8.4.2. Questionnaire Content to be kept in mind	183
8.4.3. Questionnaire Layout	183
8.4.4. Some Key Points to be remembered	183
8.4.5. Questionnaire Development	184
8.4.6. Limitations of Questionnaire	185
8.5. CONCLUSION	185
Annexure-1	
Sample Survey Questionnaire	186
Annexure-2	
Pilot Survey	191
Annexure-3	
Pilot Survey	193
Annexure-4	
Market Survey	194
Annexure-5	
Main Survey	196
Sample Research Report	197
Case Study - SMC	204

Chapter 9 : Data Preparation and Preliminary Analysis 219-248

9.1. EDITING	221
9.2. CODING	222
9.3. TABULATION	224
9.3.1. Hand Tabulation	225
9.3.2. Machine Tabulation	226

9.3.3.	One Way Tabulation	227
9.3.4.	Cross Tabulation	227
9.4.	PROCESS & ANALYSIS	229
9.4.1.	Simple Co-relation Analysis.....	229
9.4.2.	Measures of Central Tendency	230
9.4.2.1.	Means.....	230
9.4.2.2.	Median.....	230
9.4.2.3.	Mode	231
9.4.2.4.	Geometric Mean	231
9.4.2.5.	Harmonic Mean	231
9.4.3.	Measures of Dispersion.....	232
9.4.3.1.	Range	232
9.4.3.2.	Mean Deviation.....	232
9.4.3.3.	Standard Deviation	233
9.5.	FORMAL INVESTIGATION	234
9.5.1.	Strategic Planning	234
9.5.2.	Situation Analysis	234
9.5.3.	Problem Definition	235
9.5.4.	Formal Research Design	235
9.5.4.1.	Questionnaire Design.....	237
9.5.5.	Formal Investigations.....	238
9.5.6.	Conclusions.....	238
9.6.	SPSS PROCEDURE FOR DESCRIPTIVE STATISTICS.....	239
	REVIEW QUESTIONS	248

Chapter 10 : Statistical Analysis and Interpretation of Data249–287

10.1.	HYPOTHESIS TESTING	251
10.1.1.	Procedure for Testing of Hypothesis	252
10.1.2.	Important Things to Remember	253
10.1.3.	How to Set up a Claim as Hypothesis ?	253
10.1.4.	Left-Tail or Right-Tail Test	253
10.1.5.	Type of Errors in Hypothesis Testing	254
10.1.6.	p-Value in Hypothesis Testing	255
10.1.7.	Testing for the Population Mean (Population Standard Deviation Unknown)	255

10.1.8. Tests Concerning Proportion	256
10.1.9. Assumptions in Testing a Population Proportion using z-Distribution	256
10.2. CHI-SQUARE TEST (KARL PEARSON)	261
10.2.1. Application Areas	262
10.3. MEASURES OF ASSOCIATION	267
10.3.1. Bivariate Correlation Analysis	267
10.4.2. Linear Regression Analysis	268
10.4. STANDARD ERROR OF THE ESTIMATE	270
10.5. THE COEFFICIENT OF DETERMINATION (r^2)	271
10.6. SPSS Procedure for Nonparametric Technique	272
REVIEW QUESTIONS	284

Chapter 11 : Multivariate Analysis 289–351

11.1. DEFINITION OF MULTIVARIATE ANALYSIS	291
11.2. OBJECTIVES OF MULTIVARIATE ANALYSIS	291
11.3. ADVANTAGES OF MULTIVARIATE ANALYSIS	291
11.4. DISADVANTAGES OF MULTIVARIATE ANALYSIS	292
11.5. APPLICATIONS OF MULTIVARIATE ANALYSIS	293
11.6. MAJOR TECHNIQUES OF MULTIVARIATE ANALYSIS	293
11.6.1. Factor Analysis	293
11.6.1.1. Application of Factor Analysis in Marketing Research	293
11.6.1.2. Data Reduction, Structure Identification and Scaling	294
11.6.1.3. Limitation of Factor Analysis	294
11.6.1.4. Difficulties, Problems and Cautions	297
11.6.2. Cluster Analysis	298
11.6.3. Discriminant Analysis	299
11.6.4. Conjoint Analysis	303
11.6.4.1. Reliability and Validity Checks	306
11.7. GUIDELINES FOR USE OF MULTIVARIATE ANALYSIS IN RESEARCH	307
11.8. SPSS PROCEDURE FOR MULTIVARIATE ANALYSIS	308
REVIEW QUESTIONS	351

Chapter 12 : T-Test and ANOVA 353–381

12.1. T-TEST	355
12.1.1. Statistical Analysis of the T-Test	356
12.1.2. The T-Statistic	358

12.1.3	The Critical t Value and the t Test Decision Rule	358
12.1.4	Choosing a Level of Significance	358
12.1.5	Confidence Intervals	358
12.1.6	Example of t Test (One-Tailed)	359
12.2	ANOVA	361
12.2.1	Why Anova	361
12.2.2	Relationship Among Metric Dependent Variable Tests	362
12.2.3	One Way Anova	362
12.2.3.1	Assumptions	362
12.2.3.2	Statistics Associated with One-Way Anova	362
12.2.3.3	Conducting One-Way Anova	363
12.2.3.4	Features of One Factor ANOVA (F Statistic)	368
12.2.3.5	Example of One Way ANOVA	368
12.2.4	Two Way Anova	369
12.2.4.1	Assumptions	369
12.2.4.2	Features of Two-Way Anova	371
12.3	ANCOVA (Analysis of Covariance)	371
12.4	ISSUES RELATED TO ANOVA	371
12.5	SPSS PROCEDURE FOR ANOVA	374
	REVIEW QUESTIONS	381

Chapter 13 : Research Report and Proposal Writing 383-414

13.1	INTRODUCTION	385
13.2	RESEARCH PROPOSAL	386
13.2.1	Costing	387
13.2.2	The Research Proposal	388
13.2.3	Rationale for the Study	388
13.2.4	Research Objectives	388
13.2.5	Research Methodology	388
13.2.6	Target Respondents	388
13.2.7	Research Centers	389
13.2.8	Sample Size and Sample Composition	389
13.2.9	Sampling Procedures	389
13.2.10	Research Project Execution	389
13.2.11	Research Units	389

13.2.12. Samples.....	390
13.2.13. Research at a Glance	390
13.3. AN INSIGHT INTO RESEARCH REPORT AND PROPOSAL.....	390
13.3.1. The Preliminary Pages	390
13.3.2. The Main Text	390
13.4. RESEARCH PROJECT SYNOPSIS.....	391
13.5. RESEARCH REPORT WRITING	392
13.5.1. Types of Research Reports	394
13.5.2. Guidelines for Writing a Report	394
13.6. ATTITUDES WHILE REPORT WRITING	395
13.6.1. Fresh Mind Approach (FMA)	395
13.6.2. Kiss Approach (keep it Short and Simple).....	395
13.7. SIZE OF REPORT	396
13.8. STEPS IN WRITING REPORT	397
13.8.1. Preparation	397
13.8.2. Gathering the Material	398
13.8.3. Sorting, Selecting, Arranging and Recording Material.....	398
13.8.4. Writing the Introduction.....	400
13.8.5. Recording Inferences	400
13.8.6. Writing Recommendations.....	401
13.8.7. Give your Report a Positive Ending	401
13.9. REPORT PRESENTATION.....	401
13.9.1. Visual Aspects of the Report.....	402
13.9.2. How many Graphics are to be Used ?	402
13.9.3. Where to use Graphics in the Text ?	402
13.9.4. Types of Visual Aids / Graphics	403
Bar Charts	403
Stacked Bar Chart	403
Line / Area Chart	404
Pictograms	404
Pie Charts	404
Two Variable Diagrams	404
Area Charts	404
13.10. TYPING THE REPORT.....	405
13.11. DOCUMENTATION AND BIBLIOGRAPHY	407

Formatting Guidelines for Writing a Good Research Report / PhD Thesis /
Research Paper

REVIEW QUESTIONS 414

Chapter 14 : SPSS in Research Methodology 415–433

Starting SPSS 17.0 417

The SPSS Milieu: Getting Familiar with the SPSS windows 419

Toolbar 421

Menu Bar 422

Creating a Data File 427

Glossary 435–444

Annexures 445–466

Index 467–474